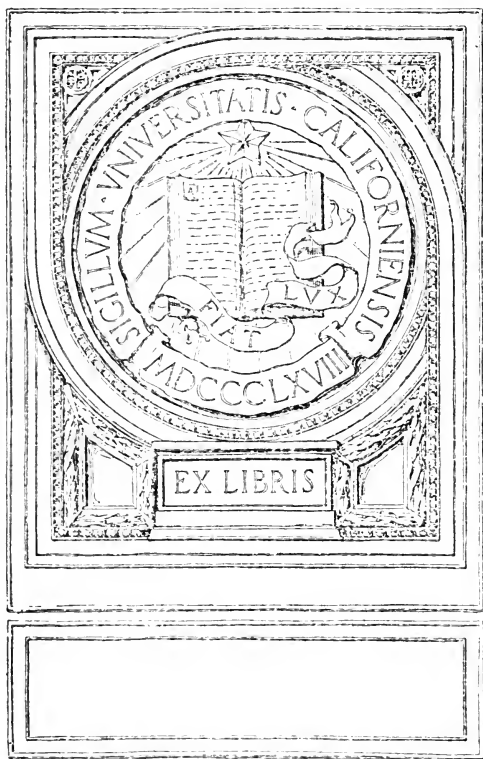


U G
444
U63

UC-NRLF



\$B 74 198





A STUDY IN BATTLE FORMATION

Monograph No. 6



Prepared in the
Historical Branch, War Plans Division
General Staff

February, 1920



WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

UG 444
UG 3

WAR DEPARTMENT
No. 1012
Office of The Adjutant General.

NO. 1012
ADJUTANT GEN.

WAR DEPARTMENT,

, WASHINGTON, *April 28, 1920.*

The following "Study in Battle Formation," prepared in the Historical Branch, War Plans Division, General Staff, is approved and published for the information of all concerned.

[062.1, A. G. O.]

BY ORDER OF THE SECRETARY OF WAR:

PEYTON C. MARCH,
General, Chief of Staff.

OFFICIAL:

P. C. HARRIS,
The Adjutant General.

451436

PREVIOUS PUBLICATIONS IN THIS SERIES.

Mono- graph No.	Title.	War De- partment Document No.
1	A Survey of German Tactics, 1918.....	883
2	Economic Mobilization in the United States for the War of 1917....	885
3	A Handbook of Economic Agencies of the War of 1917.....	908
4	A Study in Troop Frontage.....	992
5	Cambrai.....	1017

A STUDY IN BATTLE FORMATION.

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Definition of formation and purpose of this study. 2. Formation, as evidenced by organization and tactics in the American Army before the war. 3. Formations in first four combat divisions sent overseas as evidencing and determining American formations in the war. | <ol style="list-style-type: none"> 4. Formations in 1st Division. 5. Formations in 2d Division. 6. Formations in 26th Division. 7. Formations in 42d Division. 8. Formations in 27th and 30th Divisions. 9. Formations in other Divisions. 10. General discussion. 11. Conclusions as to a sound formation. |
|--|---|

1. Definition of Formation and Purpose of this Study.

The definition of the word "formation" in a military sense is "the disposition of troops." (1) It is in precisely this sense that it is used in this work. The study of battle formation, therefore, is the study of the disposition of troops in battle.

Funk & Wagnalls' Standard Dictionary. (1)

Innumerable volumes have been written on the employment of troops in battle. In all sound works the disposition is considered as a governing factor in the employment. (2) When so much eminent authority on the subject exists it would be superfluous to attempt any general discussion of the principles of the disposition of troops. This is especially true in that the war with Germany exhibited the same general features as have marked all other wars. (3)

The Principles of War, Foch, Chap. XII, The Conduct of War, Von der Goltz, Chap. XII, 3. (2)

Features of the War, Haig. p. I. (3)

A brief exposition, however, of the battle formation actually used by American troops in the war with Germany may be of value. Aside from the remote possibility of American participation in another great war in the immediate future, there is a present necessity for reorganization of our continuing military forces. (4) Troop formation is as inextricably bound up in organization as it is in employment of troops, (5) and battle experience will undoubtedly have weight in the reorganization scheme. General principles of troop formation are sufficiently stated in reports of the high command in the war with Germany to enable authorities charged with reorganization to lay the grand lines of the scheme. (6)

Report of Chief of Staff, U. S. Army 19, 19, p. 246. (4)

Report of commander in chief, A. E. F., cabled Nov. 20, 1918, p. 3. (5)

Report of commanding general, 1st Army. G-3 files, A. E. F. (6)

Also many officers charged with the details of reorganization will have their personal knowledge of battle formations to work from. Individual officers, however, with few exceptions, can not be fully informed of detailed battle formation in the American Expeditionary Forces as revealed by a study of the mass of original documents in existence. Few officers are properly placed with sufficient time to consult these documents, which as records of actual experience are the best authority on the subject. For the rest, Col. Ardant du Picq, an authority on the psychology of war, in his "Études sur le Combat" (7), says "* * * nothing, especially in the trade of war, is forgotten sooner than experience. So many fine things can be done, beautiful maneuvers executed, ingenious combat methods invented in the musings of the office, or on the maneuver field."

Études sur le
Combat, du Picq.
(7)

2. Formations, as Evidenced by Organization and Tactics, in the American Army before the War.

Annual report
of the Secretary of
War, 1919, p. 60.
(8)

Report on the
organization of
the and forces of
the United States,
1912. H.B. 21. (9)

There was no actual tactical organization of the United States Army before the war. (8) A theoretical paper organization into divisions based on study of foreign armies was formulated before 1914. This formulation visualized the incorporation of the minor tactical units actually in existence, but was self-evidently merely a makeshift necessary in a non-military country not yet animated by a national desire for provision against war. (9)

National de-
fense act, ap-
proved June 3,
1916. (10)

T. of O., United
States Army,
1917, p. 39. (11)

T. of O. for Ex-
peditionary Divi-
sions, Provisional
H.B. 201. (12)

Report of C. in
C., A. E. F., ca-
bled Nov. 20 1918,
p. 3. (13.)

T. of O., Series
A, 1918. (14)

With the progress of the European war an appreciation of the necessity for military organization grew on the country, and in 1916 an act was passed increasing and providing for the organization of the military forces of the nation. (10) Tables of organization based on this act prescribed the composition of units as large as Infantry divisions, which were, however to be divisions of three Infantry brigades. (11)

With the entry of the United States into the war the organization of Infantry divisions for expeditionary duty was changed to include two Infantry brigades of two regiments each. (12)

This organization was further amended before the entry of American troops into battle. (13) The organization actually used by the fighting unit, the American division, in the war with Germany was as follows: (14)

Table 1.—Infantry division (combat) maximum strength.

(Series A. Aug. 27, 1918.)

1.	Units.	Table No.	Approximate strength.		
			Offic- ers.	Enlisted men.	Total.
2	Division headquarters.....	2	50	238	288
3	2 Infantry brigades.....	3	524	16,426	16,950
4	1 Field Artillery brigade.....	11	220	4,841	5,061
5	1 Machine-gun battalion.....	9	16	379	395
6	1 regiment of Engineers.....	29	52	1,695	1,747
7	1 field signal battalion.....	23	15	473	488
8	Train headquarters and military police.....	24	15	359	374
9	Ammunition train.....	25	38	1,295	1,333
10	Supply train.....	26	16	485	501
11	Engineer train.....	27	2	82	84
12	Sanitary train.....	28	51	900	951
13	Aggregate.....	999	27,173	28,172

The organization of superior units and of independent units was prescribed as published in Tables of Organization, Series A, 1918, and for units larger than a corps followed the lines of an organization laid down in a priority schedule prepared at G. H. Q., A. E. F.(15)

Priority schedule, A. E. F. H. B. files.(15)

Minor tactics, before the war, were laid down in the drill regulations of the various arms. The mechanics of minor tactics were naturally fitted to existing organizations and consequently varied somewhat from the tactics employed in the war with Germany. The principles and essentials prescribed, however, proved sound.(16)

Final report C. in C., A. E. F., 1919, pp. 14-15.(16)

The principal arms which assumed formations on the battle field were Infantry, the machine-gun arm, and Artillery. The Tank Corps(17) and troops of the Chemical Warfare Service(18) either had limited opportunities or served as auxiliaries. Engineer regiments normally were used for special purposes. When used in combat they were used as Infantry.(18)

Id., p. 76.(17)

Report of Superior Board, A. E. F., Apr. 19, 1919, G-3 files, A. E. F.(18)

In Infantry minor tactics, before the war, the battalion was the combat unit. The principle of its employment was to bring it properly organized to the enemy without undue losses. This involved the use of a formation to keep the battalion organized and in hand until the necessity for avoiding loss required deployment. A battalion support was provided for. The same principles applied to higher Infantry commands to include the brigade.(19)

Infantry Drill Regulations, 1911, pp. 78-89.(19)

Combined Infantry and Cavalry D.R. for Automatic Machine Rifle, 1915, p. 43. (20)
 T. of O., 1918. (21)
 Report of Superior Board, A. E. F., Apr. 19, 1919. G-3 files, A. E. F. (22)

Pre-war machine-gun minor tactics enunciated the principle that the machine gun was not a fourth arm, but an auxiliary. (20) The machine-gun arm was recognized in the organization which governed throughout the war with Germany. (21) However, the tendency in battle to incorporate machine guns into the Infantry arm was recognized in the A. E. F. in France. (22)

Provisional Drill and Service Reg. for Field Artillery, 1916, Vol. IV, pp. 9-11. (23)

The governing purpose of pre-war Artillery minor tactics in assisting the advance of the Infantry was to secure unity of direction of Artillery fire, which is characterized by the ease with which it can be shifted. This unity was favored by keeping units, especially the battalion, concentrated, and by employment in general of no smaller unit than the battalion. (23)

Field Service Regulations, 1914, pp. 74-76. (24)
 Id., p. 79. (25)

Pre-war combined or major tactics were based on the principles that Infantry decided the issue of battle; that Artillery, light and heavy, existed to assist the Infantry by fire; that Engineer or other special troops were to be used as Infantry. (24) They required the fire action of the machine gun without, however, giving to that weapon the prominence it later attained. (25)

3. Formations in the First Four Combat Divisions Sent Overseas, as Evidencing and Determining American Formations in the War with Germany.

The basis existing before the war with Germany for formations to be adopted in war has been indicated in the preceding numbered paragraph. It will be seen that formations were changed and improved during the progress of the war as experience dictated. The fullest advantage was taken of the experiences of our allies, and the training of the first divisions sent to France was begun in close association with the French Army. (26) These divisions, the 1st, 2d, 26th, and 42d, following their early experience with French armies, participated in many of the major operations of the American forces (27), and the formations they adopted influenced formations adopted by subsequently arriving divisions. (28)

Final report of C. in C., A. E. F., p. 14. (26)
 Id., pp. 32, 42. 46, 53. (27)
 F. O. No. 2, 90th Division, Aug. 19, 1918. H. B. file 290-6. (28)

The development of formations in these first divisions therefore offers the most fruitful field for study.

4. Formations in the 1st Division.

Final report of C. in C., A. E. F., p. 19. (29)

The first complete occupation of a sector by American troops was the occupation of the Ansaerville sector north of Toul by the 1st Division in January, 1918. (29) This occupation was ordered by the French 1st Army, and

naturally followed French customs. The Infantry formation was one brigade in line, one brigade in reserve in the training area. The regiments of the brigade in line were abreast; the right regiment with one battalion in line, one in regimental support, and one in reserve; the left regiment with two battalions in line, one in regimental reserve. The division Engineer regiment was not treated as an Infantry force, and only work was required of it.(30)

The division machine-gun units were merely required to relieve the French machine guns.(31) The divisional Artillery was merely required to relieve the French Artillery and occupy prepared or designated positions.(32)

This was a period rigidly restricted to defense in contemplation of a German offensive.(33) The occupation of divisional defensive sectors was exactly laid down in French regulations for French divisions, later published for American use.(34) The first formations adopted therefore have no especial national significance, as they appear to have been dictated by the necessity of fitting the American divisional organization into the general French defensive scheme.

G. O. 638,
French 1st Army,
Jan. 7, 1918. 1st
Division Journal
of Operations,
G-3 files, A. E. F.
(30)

Inst. No. 5. Op.
Sect., 1st Division,
Jan. 16, 1918,
Journal of Operations
files. G-3,
A. E. F.(31)

693/3, French
69th Div., Jan. 16,
1918, Journal of
Operations 1st
Division files.
G-3, A. E. F.(32)

Final report of
C. in C., A. E. F.,
p. 18.(33)

Instructions on
the Defensive Action
of Large Units
in Battle. W. D. D.
794, 1918. (34)

F. O. No. 15, 1st
Division, May 10,
1918. Files G-3,
A. E. F.(35)

A characteristic formation in the 1st Division appeared during its tour in Picardy following the German offensive of March 21, 1918. In anticipation of a further German offensive on Amiens a counter offensive was prepared although it never became necessary to execute it. The infantry formation ordered for the 1st Division was: Brigades abreast; regiments abreast; right regiment, battalions in depth; right center regiment, two battalions in line, one in support; left center regiment, two battalions in line, one in reserve; left regiment, battalions in depth. This approached the later normal formation of the 1st Division, although still showing French influence. Batteries of machine guns for indirect fire were provided for, to be organized from the division machine gun battalion and from machine gun units with Infantry reserve battalions. Orders showed an habitual attachment of machine-gun companies to Infantry battalions.(35) This followed French custom(36), in opposition to the American organization of machine-gun companies into separate battalions.(37) The Artillery formation ordered, contemplated three groupements, and a reserve, each including both 75's and 155's.(35) This showed a French tendency to constitute temporary tactical units in place of using existing organizations; at

Tableaux d'Effectifs,
G. S. College Library.(36)
T. of O., Series
A, 1918.(37)

the same time it showed a tendency, more apparent later, to assign Artillery organizations to support Infantry organizations within the division. Orders for tanks assigned tank units to accompany and support Infantry organizations(35) and so far their mission as prescribed in this division, under French command, was analogous to that prescribed for accompanying guns when American divisions began to fight under American high command. (38)

Combat instructions No. 1348, G-5, A. E. F. H. B., 22.(38)

Report of C. in C., A. E. F., cable dated Nov. 20, 1918, p. 9.(39)

F. O. 18, 1st Division, May 20, 1918. H. B., 201-13.(40)

The first actual offensive operation of the 1st Division was against Cantigny.(39) This was a local operation, and the Infantry formation ordered for the attacking regiment consequently did not show the depth which appears in major operations. All three Infantry battalions were in the front line, with reserves consisting of companies. The machine-gun formation showed the dual rôle of the weapon. Barrage groups were formed from available companies to act by fire, but the characteristic incorporation of machine-gun companies in front-line Infantry battalions was again evident, and in this case the machine-gun companies were broken up into detachments for front-line Infantry companies. The Artillery, greatly reinforced, was employed as a unit in accordance with the demands of such an operation. Twelve tanks accompanied the Infantry to assist in its advance.(40) In this operation, with an advance limited to one or two thousand yards, it is evident that there was no occasion for the use of accompanying guns.

Final report of C. in C., A. E. F., p. 34.(41)

Map from 1st Division, June 4, 1918, map room files. G-3, A. E. F.(42)

Following the Cantigny operation, the 1st Division was organized for defense against an expected German major offensive which actually came between Noyon and Montdidier on June 9, 1918.(41) The Infantry formation adopted was that of brigades abreast, regiments abreast, with battalions in depth.(42)

F. O. 27, 1st Division, July 15, 1918. H. B., 201-13.(43)

This Infantry formation became the basis of the normal formation of the division. In the Aisne-Marne offensive of July 18, south of Soissons, the Infantry had the normal formation, brigades abreast, regiments abreast, battalions in depth, the interior third line battalions in brigade reserve, the exterior third line battalions in division reserve. The division machine-gun battalion was in division reserve; all other machine-gun companies were attached to and participated in action with Infantry battalions. The divisional Artillery was reinforced by a regiment of French 75's and by other organizations

of heavier artillery. One battalion of 75's was assigned to act with the Infantry in each regimental zone. This was the characteristic assignment of subordinate Light Artillery organizations to act in direct liaison with subordinate Infantry organizations. The necessity for having Light Artillery guns up behind the front line Infantry was recognized by prescribing that the 75's unable to cover the advance to the second objective would move forward and take position to cover further advances. One groupement of French tanks, assigned to act with the Infantry, consisted of 48 tanks and filled the rôle assigned to accompanying Artillery in later operations. The division Engineer regiment was broken up. One company was assigned to each Infantry brigade for engineer work, the other four companies were held in division reserve. (43)

The formation adopted by the 1st Division for the St. Mihiel operation was dictated by its mission, which was to cover the left flank of its own advance and the left flank of the whole southern attack. The Infantry formation was normal, in so far as it provided that the two Infantry brigades and the two Infantry regiments in each brigade attack abreast. The 26th, 28th, and 16th Infantry, from right to left, were in the formation normal to the division; that is, with battalions in depth. The 18th Infantry on the extreme left flank of the whole southern attack naturally had to take dispositions to cover the flank. In consequence, it had two battalions in the front line, the left battalion covering the advance of the right battalion. Each of these battalions, however, was reduced by one company. One of these detached companies remained in regimental reserve to replace the support battalion which would have been at the disposition of the regimental commander in the normal formation, and one company was assigned to duty with tanks which were to commence operations principally in the regimental zone of the 18th Infantry. The machine-gun strength of the 1st Division was reinforced for this operation by the 7th Machine Gun Battalion of the 3d Division. The machine-gun disposition for this attack was one machine-gun company with each Infantry battalion, these companies coming from the Infantry regiments and from the brigade battalions. The division machine-gun battalion remained in division reserve while the 7th Machine Gun Battalion of the 3d Division was placed

F. O. 36, 1st Division, Sept. 9, 1918. H. B. 201-13. (44)

in reserve of the 1st Brigade, which it was believed would have to occupy a long defensive front on the left flank of the whole southern attack.

The divisional Artillery was reinforced by the 58th Field Artillery Brigade, less one battalion of 155's, by one regiment of 75's from the 3d Field Artillery Brigade, and by two batteries of 8-inch howitzers. The principal mission of the Artillery was destruction fire and barrage. The 75's were required to deliver barrage to protect the Infantry to the second objective. Certain units of 75's were required to move forward before the Infantry reached the third objective in order to support any further advance. The customary battalions, or larger units, were designated to act with subordinate commands in the various Infantry zones. Notation of the designation of gun platoons to accompany the Infantry appeared for the first time in the orders of this division in the first purely American great attack in which it participated. Forty-nine American-manned tanks were assigned to the support of the division. They were accompanied by detachments of Engineers and Infantry detachments from the 18th Infantry. Their mission, in brief, was to assist the advance of the Infantry, and consequently they had much the same mission as did the accompanying Artillery platoons. The division Engineer regiment, reinforced by two companies of the 51st Pioneer Infantry, was used on purely engineering work which required its breaking up into many details for the purpose of cutting wire, assisting the advance of tanks, constructing bridges, repairing roads, etc.(44)

F. O. 47, 1st Division, Oct. 2, 1918. H. B., 201-13.(45)

In its entry into the Meuse-Argonne operation the 1st Division used its normal Infantry formation, brigades abreast, regiments abreast, with their three battalions in depth. The regiments from right to left were the 26th, 28th, 18th, and 16th Infantry. Two companies, one from each of the first and second line battalions of the 16th Infantry, were detached for combat patrol duty in the Aire Valley where it was believed that liaison with the 28th Division on the left would be difficult. The characteristic attachment of machine-gun companies to first and second line Infantry battalions was evident. It was prescribed, however, that these companies should advance by bounds, thereby indicating that they might have had some trouble heretofore in rigidly conforming to the Infantry advance. The machine-gun companies

normally attached to third-line battalions were all placed in brigade reserve of their respective brigades. This included the companies normally attached to Infantry battalions in division reserve. The employment ordered for the machine-gun companies in brigade reserve was to fill gaps and protect the flanks of the advance. The division machine-gun battalion was held in division reserve. The principal mission of the Artillery for this advance was to furnish barrage. The customary forward movement by echelon was ordered and the accompanying guns again appeared in the assignment of two 75's to each first-line Infantry battalion. Thirty tanks of the 1st Brigade Tanks were assigned to support the advance of the division. The mission of the tanks, in general, was to assist the advance of the Infantry by attacking strong points. The division Engineer regiment was held in division reserve.(45)

During the progress of the attack of the 1st Division from October 4 the most powerful opposition was encountered and some of the hardest fighting of the campaign was necessary.(46) Consequently it was necessary to use divisional reserves to carry on the fight.(47) Nightly reorganization of battalion units and the employment, when necessary, of Infantry battalions which had originally been in brigade and division reserve characterized this advance.(48)

By October 8, 1918, the 1st Division had been reinforced by the 181st Infantry Brigade of the 91st Division(49) which had recently been withdrawn from the line.(50) It was necessary to use this brigade as well as all combat elements in the division, including the division Engineer regiment and the division machine-gun battalion, in order to continue the advance. The normal Infantry formation was held to only in that the three Infantry brigades attacked abreast. The 181st Brigade had the 361st Infantry in line. It had, however, only a holding mission and was required to advance only to conform to the advance on the rest of the front of the division. The 2d Infantry Brigade was in the center. On the right of this brigade was one battalion of Engineers and one company of the divisional machine-gun battalion. In its center were two battalions of the 26th Infantry organized in depth. On its left was the 28th Infantry organized in depth. The 1st Infantry Brigade was on the left of the division. It had one battalion of the

Report of C. in C., A. E. F., compiled Nov. 20, 1918, p. 19.(46)

F. O. 48, 1st Division, Oct. 5, 1918, II. B., 201-13.(47) Annex to F. O. 48, Special Instruction for C. G., 2d Inf. Brigade, II. B., 201-13.(48)

F. O. 49, 1st Division, Oct. 8, 1918, G-3 files, A. E. F.(49)

Map of Meuse-Argonne offensive. Final report of C. in C., A. E. F.(50)

16th Infantry, which up to this time had been in division reserve, on the right of the brigade front. This fresh battalion delivered the main assault. Next to it was the 18th Infantry organized in depth, and, on the left, the 16th Infantry with its two remaining battalions organized in depth. One battalion of the 26th Infantry, one battalion of the 1st Engineers, one company of the division machine-gun battalion and the 362d Infantry were in division reserve. The customary assignment of machine-gun companies to Infantry battalions appeared. The division machine-gun battalions and the companies with the third-line Infantry battalions of the 2d Brigade were organized in four groups for barrage work.(49)

Memo. G-3, 1086,
1st Division, Oct.
8, 1918. Supple-
mentary Instruc-
tions for 181st Inf.
Brigade. G-3
files, A. E. F.(51)

An interesting feature of the participation of the 181st Infantry Brigade in the attack of the 1st Division appeared in the detailed disposition ordered in that brigade by the 1st Division, in order to have it conform in part to the normal formations of the 1st Division. The 361st Infantry and the 347th Machine Gun Battalion were the troops of the 181st Brigade in line. They were organized in depth. Two Infantry battalions were in the first line and one in regimental reserve for counter attack. The battalions in line each had two companies in the front line and two companies 100 to 300 meters in rear. The machine guns were echeloned in checkerboard formation. A platoon of Infantry and a section of machine guns were combined into a combat liaison group on each flank.(51)

F. O. 50, 1st Di-
vision, Oct. 9,
1918. H. B., 201-
13.(52)

During the participation of the 181st Infantry Brigade in the attack of the 1st Division, an individual Artillery regiment, the 124th, was definitely assigned to its support, just as within the 1st Division the 7th Field Artillery was assigned to the 2d Infantry Brigade and the 6th Field Artillery to the 1st Infantry Brigade.(52)

F. O. 61, 1st Di-
vision, Nov. 5,
1918. H. B., 201-
13.(53)

The next appearance of the 1st Division in attack was on November 6, 1918.(53) The First Army attack of November 1, 1918, had been increasingly successful(54) and

Final report of
C. in C., A. E. F.,
p. 51.(5.)

the 1st Division went into line on the left of the 2d Division to exploit the success of the 5th Corps to which it then belonged. The Infantry formation in the operation of this day was as follows: The two Infantry brigades were abreast, the 2d Brigade on the right, the 1st Brigade on the left. The 1st Brigade was in normal formation except that the interior, in place of the exterior third line battalion, was in division reserve. The 2d Brigade had

one regiment in line with two battalions in the front line and one in the second line. The other regiment was in reserve. The Artillery was directed to furnish accompanying guns, this matter to be arranged directly between the Artillery brigade and Infantry battalion commanders.(53)

Following the success of the operation of November 6, 1918, the 1st Division moved on Sedan that night. The advance was made in five columns, to take advantage of all available roads. A tendency to follow the normal attack formation was, however, evident. The right-hand column, which moved directly down the Meuse, consisted of one battalion of the 16th Infantry, and had more or less the mission of a flank guard. The second column was composed of the 16th Infantry less one battalion, and one company of Engineers. The third column was composed of the 18th Infantry less one battalion in division reserve. The fourth column was composed of the 28th Infantry and one company of Engineers. The fifth column was composed of the 26th Infantry. The division reserves which conformed to the movement of the division commander in following up the advance were one battalion of the 18th Infantry, the 1st Machine Gun Battalion, and the 1st Engineers less two companies.(55)

Following the night march on Sedan, on November 7, the division attacked the heights southwest of Sedan. The usual attack formation was prescribed.(56)

5. Formations in the 2d Division.

The 2d Division, like the 1st Division, first entered the line under French command. Occupation and daily observation of the French defensive trench system in its sector near Verdun unconsciously taught the command the value of organization in depth.(57)

Following the early German offensives of 1918, the 2d Division was withdrawn from the defensive sector near Verdun and placed in reserve in the vicinity of Gisors northwest of Paris. It was there when the German offensive of May 27 developed an unexpected success, and had to be hurriedly moved to check the German advance.(58) The disposition it assumed on its second entry into the line was dictated by necessity.

On June 2, 1918, the 23d Infantry, one battalion of the 5th Marines, the 5th Machine Gun Battalion, and one company of the 2d Engineers filled a gap in the French line northwest of Château-Thierry. For the rest of June, the division was engaged in bitter fighting in the vicinity

F. O. 62, 1st Division, Nov. 6, 1918. G-3 files, A. E. F. (55)

F. O. 63, 1st Division, Nov. 6, 1918. G-3 files, A. E. F. (56)

Report of the 2d Division in the fighting northwest of Château-Thierry, end of May to early part of July, 1918. G-3 files, A. E. F. (57)

Final report of C. in C., A. E. F., p. 33.(58)

Report of the 2d Division, in the fighting northwest of Château-Thierry end of May to early part of July, 1918. G-3 files, A. E. F. (59)

of Belleau Wood, whose capture was not completed until June 25. On June 23, an Infantry battalion commander stated: "Infantry alone can not dislodge guns." This view was accepted by the command, and two days later the Infantry lines were withdrawn, and an artillery concentration was placed on the northern part of the wood, which was then taken.(59)

Report of C. in C., A. E. F., captured Nov. 20, 1918, p. 10. (60)
F. O. 9, 2d Division, June 30, 1918. G-3 files, A. E. F. (61).

On July 1, a formal prepared attack by this division captured the village of Vaux.(60) The 3d Brigade was charged with this attack, which was made by one battalion each of the 9th and 23d Infantry accompanied by Engineer detachments. One battalion of the 9th Infantry was in reserve to be used in case of necessity.(61)

F. O. 15, 9th Infantry, June 30, 1918, G-3 files, A. E. F. (62)

The disposition of the 2d Battalion of the 9th Infantry, which was one of the assaulting battalions, was two companies in the front line, one in reserve. A machine-gun company and one company of Engineers for demolition, together with various 1-pounder and trench mortar detachments, were attached to the battalion for the operation. It sent out liaison detachments of one platoon and one machine gun from the supporting company to one flank, and one-half of a platoon and one machine gun to the other flank.(62) Each of the assaulting companies of this battalion had two platoons in the first line and two in support.(63) The disposition of the assaulting battalion of the 23d Infantry was three companies, less two platoons, in line; one company and two platoons in reserve.(64)

Brief report of operations of the 2d Battalion of the 9th Infantry on the taking of Vaux. G-3 files, A. E. F. (63)
F. O. 43, 23d Infantry, June 30, 1918. G-3 files A. E. F. (64).

Final report C. in C., A. E. F., p. 35 (65)

The first participation of the 2d Division in a major offensive was in that of July 18, 1918.(65) The Infantry formation for this attack was brigades abreast, the 3d Brigade with regiments abreast, the 4th Brigade with the 5th Marines in the front line and the 6th Marines in reserve.(66) Initial formations were naturally broken up in the desperate fighting, but some disposition in depth was held to throughout. A battalion commander reported finding his battalion with the left flank entirely in the air, but with the three companies of the battalion present disposed in two lines.(67) A note sent to the 2d Division on July 16, 1918, by the French 20th Corps, under which it attacked on July 18, prescribed the use of tanks. This note prescribed a depth organization for tanks in the contemplated operation, this formation to be secured by assigning tanks to the direct support of successive Infantry units.(68)

F. O. 15, 2d Division, July 17, 1918. G-3 files, A. E. F. (66)

Report of C. O., 2d Battalion, 5th Marines, July 23, 1918, on attack northeast of Vierz. G-3 files, A. E. F. (67)

No. 7085 French 10th Army, July 15, 1918. H. B., 202-20. (68)

The first participation of the 2d Division in a major offensive under American command was in the St. Mihiel operation.⁽⁶⁹⁾ The Infantry formation for this attack was brigades in depth, regiments abreast in each brigade, with battalions in depth within the regiments. The first-line Infantry brigade, which was the 3d Brigade, disposed of its own machine-gun battalion for the advance. The regimental machine-gun companies remained with the regiments. The machine-gun battalion of the 4th Brigade and the division machine-gun battalion were grouped under the division machine-gun officer for barrage fire, until the 4th Brigade should pass the jump-off line in following up the attack. Both battalions then passed to the command of the 4th Brigade. One battalion of Artillery was assigned to assist the advance of the first-line Infantry battalions as forward guns. The tanks attached to the division for the operation were used to assist the advance of the Infantry and reduce strong points. The engineer regiment was used purely for engineer work in this attack.⁽⁷⁰⁾

The Blanc Mont operation of the 2d Division in early October showed another variation in Infantry formation. The initial attack was a converging attack by brigades both of which were in the front line with an interval between them; each brigade had its regiments in depth, and each front-line regiment had its battalions in depth. The machine-gun disposition showed the division machine-gun battalion in division reserve. The orders for the Artillery in this operation required that it be brought forward in echelon. It is interesting to note that this division was at this time serving under French command and that accompanying guns were not required in the division order. A battalion of French tanks was assigned to each brigade.⁽⁷¹⁾ They are reported by the commanding general, 3d Brigade, to have been useful.⁽⁷²⁾ The front-line Infantry formation generally used throughout the 4th Brigade in this attack consisted of a light line of scouts followed by mobile combat groups.⁽⁷³⁾

The Infantry formation of the 2d Division, for its initial attack on November 1 in the Meuse-Argonne operation, was with brigades abreast. The 3d Brigade had its regiments in depth, with the 23d Infantry committed to a separate operation against a strong position and the 9th Infantry in reserve. The formation of the

Final report C. in C., A. E. F., p. 42, (69)
F. O. 27, 2d Division, Sept. 10, 1918, Tentative Plan of Attack, 2d Division, Sept. 8, 1918. Both G-3 files, A. E. F. (70)

F. O. 35, 2d Division, Oct. 2, 1918. G-3 files, A. E. F. (71)

Report of Operations, Oct. 1 to 6, 1918, Commanding General, 3d Brigade. G-3 files, A. E. F. (72)
Operation Report 4th Brigade Marines, covering a period from Oct. 1 to 10, 1918. G-3 files, A. E. F. (73)

F. O. 49, 2d Division, Oct. 31, 1918. Operation Report of 2d Division, Nov. 1 to Nov. 11, 1918. Both G-3 files; A. E. F. (74)

4th Brigade was regiments abreast, each regiment with its battalions in depth. (74) In the 5th Marines the first-line battalion had two companies in the front line and two in support. Each of the front-line companies had two platoons in the first wave, and two platoons following in combat groups. There was a distance of 800 yards between the first and second line battalions.

Report of Operations, Oct. 17 to Nov. 16, 5th Regiment Marines. G-3 files, A. E. F. (75)

The formation ordered for the second-line battalion was with lines of combat groups in single file. The third-line battalion followed at 800 yards in the same formation. (75)

Report of Operations from Oct. 24 to Nov. 13, 1918, 6th Regiment of Marines. H. B., 202-23. (76)

The initial disposition of the 6th Marines was with battalions in depth at 1,000 yards distance. (76) The machine-gun disposition required a delivery of barrage fire, after which regimental and brigade machine-gun companies were required to join Infantry organizations for the advance. The division machine-gun battalion participated in the harassing and barrage fire and eventually passed into division reserve. Orders for the Artillery required its advance by echelon, as the attack progressed. Orders for a detachment of the 1st Brigade Tanks required their use to reduce strong points. (74)

Following the success of the attack of November 1, the 2d Division adopted an extraordinary night attack formation with the greatest success. On the night of November 2-3, and on the night of November 3-4, the 3d Brigade advanced along a road through the enemy position in column of twos, making successful use of an advance-guard formation. An advance was made on the night of November 3-4, of 6 kilometers through the main enemy position. In this advance one battalion of the 9th Infantry, accompanied by a battery of Light Artillery, was in the lead. (77) The 2d Field Artillery Brigade was required to place guns at the disposition of the front-line Infantry commanders following the success of this night's advance. (78)

Report of Operations between the Meuse and the Argonne, 3d Brigade, Nov. 16, 1918. G-3 files; A. E. F. (77)

F. O. 54, 2d Division, Nov. 3, 1918. G-3 files; A. E. F. (78)

Report of Operations, Nov. 1 to 7, 1918. 23d Inf. G-3 files, A. E. F. (79)

Report of Operations of the 5th Machine Gun Battalion for action from Nov. 1 to Nov. 11, 1918. G-3 files, A. E. F. (80)

The initial success of the 2d Division in the Meuse-Argonne operation was attributed to complete coordination of the two principal arms, the Infantry and the Artillery. Its later success was due to daring and adroit advances. (79) The best use of machine-gun companies attached to Infantry battalions was made when the company was employed directly under the company commander to assist the advance of the Infantry. (80) The best result in the use of Artillery

throughout the advance was secured by placing responsibility for the support of the Infantry in the hands of the Artillery regimental and battalion commanders in direct liaison with Infantry commanders.(81)

Report of Operations during the period of Nov. 1 to Nov. 11, 1918, 2d Field Artillery Brigade. H. B., 202-45.(81)

Fifteen tanks jumped off on November 1 with the 2d Division. At the first objective four continued in support of the 5th Marines and were useful in the reduction of machine-gun nests, so far playing the rôle of accompanying guns.(82)

Report of Operations of the First Prov. Tank Co., 1st Brigade Tanks, for Nov. 1. H. B., 202-53.(82)

Various reports of the 2d Division rendered subsequent to the armistice have a value either as revealing formations taken in particular cases or as setting forth opinions as to customary formations held by subordinate officers with combat experience. One interesting report gives the varying formation adopted by a liaison group which acted between the 2d Division and the 80th Division in the attack of November 1. This group was composed of one company from each of the divisions. Each company was reinforced by a machine-gun platoon. The formation adopted was one of echelon in depth, one company about 350 yards behind the other. In advancing between the main zones of attack of the two divisions it connected, this group had occasion to utilize the rear company for flanking action to turn resistance on the front of the leading company. The distance between the two companies varied according to the varying rate of progress of the two divisions, and at times it was necessary for the rear company to keep at a distance of 1½ kilometers to the rear of the leading company.(83)

Report to Commanding General, 2d Division. H. B., 202-50.(83)

Another report of value was rendered some time after the armistice by the commanding officer, 9th Infantry, which set forth the opinions of various Infantry company officers of this regiment, a part of the 2d Division.(84) While such opinions have not the comprehensive value of opinions formulated in division attack orders, they are of interest as exhibiting the mental attitude of commanding officers of company and smaller units, which are the essential elements of all battle combination.(85) The questions treated of in this report, which are of especial interest in the present study, were: that of the proper formation of small Infantry units for attacking machine-gun nests; that of a proper formation for advancing through Artillery fire; and that of the value of the accompanying guns. Conflict of opinion

Report of Commanding Officer, 9th Inf. to Commanding General, 3d Brigade, Jan. 11, 1919. H. B. files.(84)

Études sur le Combat, du Pict. (85)

was found even among officers of the same class in the same regiment. There was, however, general agreement that speed and open formation was necessary in attacking machine-gun nests. Flanking action was generally recommended, if possible. The value of fire action, either of Artillery, auxiliary Infantry arms, or machine-guns, was recognized. But the tendency not to be delayed by the absence of such fire action was illuminating. The formation for advancing through Artillery fire, which was almost universally recommended, was that of small open columns not greater than a platoon. One officer advocated the open skirmish line, but most of the officers recognized the difficulty of control of such a line. Difference of opinion existed again as to the value of the accompanying gun. One officer made a definite recommendation that one or two guns be put under the immediate command of the Infantry battalion commander. This opinion, however, was not sustained by all of the other officers, one of whom noted invariably successful support of Infantry advance by Artillery fire when liaison could be maintained with Artillery in the rear. (84)

6. Formations in the 26th Division.

Memo. for A. C. of S., G-3, Apr. 24, 1918, Journal of Operations, 26th Div. G-3 files, A. E. F. (86)

The first appearance of the 26th Division in line was in defensive sectors under French command, and its formation showed the characteristics adopted to fit into the existing French organization of the terrain. On April 20, 1918, the 26th Division was occupying the Ansauville sector north of Toul. The general occupation of this sector by the 1st Division has already been shown. On the date in question the 26th Division had the 102d Infantry in line as the right regiment. Of two battalions in the front line, the right battalion held the front-line trenches with two companies, one less one platoon, the other less two platoons. The three detached platoons were in support to the rear—one of them as much as 2,000 meters to the rear. The left battalion had two companies in the front line, each less one platoon; these two platoons were on the main position some 2,000 meters to the rear. (86) The detailed formation of the advance companies noted is principally interesting as indicating a characteristic tendency to break up small organizations in order to take the fullest advantage of the shelter existing in defensive sectors.

For the Aisne-Marne offensive from July 18, 1918, the 26th Division was a part of the 1st Corps operating in the general vicinity of Château-Thierry. (87)

F. O. 51, 26th Division, July 18, 1918. G-3 files, E. F. (87)

The Infantry formation ordered for the advance on July 19, 1918, was Infantry brigades abreast. The division orders required advance by regimental columns with small advance guards if the defensive action of the enemy permitted this formation. The division machine gun battalion was attached to the 52d Brigade and the attachment of subordinate machine-gun units to subordinate Infantry units was evidenced in the composition of the liaison group formed to maintain connection with the French division on the right. One regiment of 75's was assigned to support each Infantry brigade, the 155's remaining under the control of the Artillery brigade. (88) There was no actual advance made by this division on July 19, 1918. (89) The use of accompanying batteries for the close support of the front-line Infantry and to reduce machine-gun nests first appeared in this division in this offensive. It was noted, however, that the best use of such batteries was at 2,000 yards, at least, in rear of the front line with very forward observers. (90)

F. O. 52, 26th Division, July 18, 1918. G-3 files, A. E. F. (88)

Report of Operations, Offensive, commencing July 18, 1918. 26th Division. G-3 files, A. E. F. (89)

Report of Operations July 18-Aug. 4, 1918, 51st Field Artillery Brigade. G-3 files, A. E. F. (90)

For the St. Mihiel operation, September 12, 1918, the initial Infantry formation in the 26th Division was brigades abreast. The 51st Brigade had one regiment in line with two battalions in the first line and one in the second. The second regiment was in division reserve. The 52d Brigade had its regiments abreast, each regiment with battalions in depth. To each front-line battalion there was attached one machine-gun company, one 75 accompanying gun and various auxiliary Infantry weapons. Each second-line battalion had one machine-gun company. (91) The first-line battalion had two companies in the firing line and two in support. Each company had a similar organization in depth. (92)

F. O. 77, 26th Division, Sept. 11, 1918. G-3 files, A. E. F. (91)

Observations on operation for reduction of the St. Mihiel salient, Commanding General, 26th Division, Sept. 20, 1918. G-3 files, A. E. F. (92)

On October 23, 1918, the 26th Division attacked on the eastern heights of the Meuse north of Verdun. The 51st Brigade was used for the attack and the brigade in turn used the 101st Infantry for the attack with the 102d Infantry in reserve. The formation of the 101st Infantry was with two front-line battalions in converging attack. Each battalion had two companies in the firing line and two in support. The third battalion in brigade reserve followed a front-line battalion at 500

F. O. 92, 26th Division, Oct. 21, 1918. G-3 files, A. E. F. (93)

meters distance. Each of the front-line battalions had a machine-gun company and auxiliary Infantry weapon attached. The 101st and 102d Machine Gun Battalions were placed under command of the commanding general 51st Brigade for the attack, which was supported by the fire of the 51st Field Artillery Brigade.(93)

F. O. 100, 26th
Division, Nov. 7,
1918. G-3 files,
A. E. F. (94)

It may be noted that on November 7 there appeared in the field orders of this division a new statement of the Infantry formations to be adopted in the event of the enemy withdrawal. It conformed to the general principles of formation in depth already evidenced in the orders of the division but it showed a striking similarity to the normal formation of the 1st Division. This appearance followed the taking over of command of the 26th Division by a general officer who had lately served with and for a time commanded the 1st Division. This formation was brigades abreast, regiments abreast, each regiment with battalions in depth, 600 meters between first and second line battalions, 1,000 meters between second and third line battalions. The first-line battalion had one machine-gun company, a 75-millimeter accompanying gun, and auxiliary Infantry weapons attached. The second-line battalion had a machine-gun company attached. Orders for the Artillery required it to change position by battalion, but attached one 75-millimeter gun to each Infantry assault battalion.(94)

7. Formations in the 42d Division.

Report of Operations in Champagne, Commanding General, 42d Division, Dec. 10, 1918. G-3 files, A. E. F. (95)
Operation Report, 42d Division, July 15-Aug. 3, 1918. G-3 files, A. E. F. (96)

The first appearance of the 42d Division on the front was under French command and this condition existed through the Marne defensive up to July 18, 1918.(95)

The report of the commanding general, 42d Division, covering the division's participation in the Aisne-Marne offensive, from July 18, 1918, formulated some general principles as a result of experience gained in that operation. It recommended the use of Infantry formations capable of delivering heavy fire-action in support of the attack of machine-gun nests and noted that Infantry approach formations should be used cautiously in pursuit. A formation with advance-guard detachments was reported to progress much more rapidly. In the absence of tanks it recommended the aggressive use of a portion of the divisional light artillery to assist the advance of the Infantry by destroying machine-gun nests by direct fire.(96)

For the St. Mihiel operation the 42d Division used a formation which it had developed from previous experiences. The Infantry formation was brigades abreast, regiments abreast, each regiment with battalions in depth. The interior third-line battalions were brigade reserves. The third-line battalions of exterior regiments were division reserves but were placed about 500 yards directly in rear of the third-line battalions of interior regiments. The distance between first and second and second and third line battalions was about 500 yards.(97) In addition to its component units each Infantry brigade had one battery of 75's, attached as accompanying artillery from the taking of the first objective, a detachment of tanks, two companies of engineers, and auxiliary troops. One regiment of 75's was the nucleus of each of two groups of Artillery which supported Infantry brigades in their zones and on capture of the first day's objective, passed to the control of Infantry brigade commanders. The use of brigade machine-gun organizations was left to the Infantry brigade with the provision that they should be used in depth. The division machine-gun battalion was in division reserve.(98)

Orders for the first participation of the 42d Division in the Meuse-Argonne offensive insisted on the actual accompaniment of front-line battalions by two accompanying guns per battalion.(99)

The Infantry formation of the 42d Division for the attack of October 14, 1918, in the Meuse-Argonne offensive was with brigades abreast.(99) The detailed formation of one, the 83d Infantry Brigade, was regiments abreast, each with battalions in depth. The front-line battalions had two companies each in the front line and two in support. Each front-line company had half its strength in two assault waves 20 meters apart, the remainder in support. The support battalions followed the assault battalions at 1 kilometer. The regimental machine-gun companies in this brigade supported assault battalions as companies. The brigade machine-gun battalion furnished details for liaison groups, etc., and used fire action from position.(100)

Later orders for the 42d Division in the Meuse-Argonne offensive contemplated the use of brigades in depth with 3 kilometers between brigades, the front-line brigade with regiments abreast and supported by the divisional artillery and machine-gun battalions.(101)

Report of Operations, 42d Division, Sept. 11-15, 1918. G-3 files, A. E. F.(97)

F. O. 17, 42d Division, Sept. 9, 1918. G-3 files, A. E. F.(98)

F. O. 36, 42d Division, Oct. 13, 1918. G-3 files, A. E. F.(99)

F. O. 16, 83d Infantry Brigade, Oct. 13, 1918. H. B., 242-23.(100)

F. O. 45, 42d Division, Oct. 27, 1918. G-3 files, A. E. F.(101)

F.O. 52, 42d Division, Nov. 4, 1918. G-3 files, A. E. F. (102)

The final appearance of the 42d Division in action was in the pursuit toward Sedan, following the break through of November 1, 1918. Here the normal Infantry formation of the division reappeared. It was brigades abreast, regiments abreast, each regiment with its battalions in depth. In this case, however, all Infantry was left at the disposition of the brigade commanders and in addition the division machine-gun battalion and one company of division engineers were attached to the 84th Infantry Brigade. The division reserve consisted of the division engineer regiment less one company. (102)

Final report C. in C., A. E. F., pp. 33, 54. (103)

8. Formations in the 27th and 30th Divisions.

Several divisions had their first training with the British, but two only, the 27th and the 30th, had all their war service under British command. These divisions under the 2d Corps participated in very heavy fighting, including the breaking of the Hindenburg line, in September and October, 1918. (103) It is interesting to note what difference, if any, existed between the formations adopted by these divisions and the divisions which were more within the sphere of French influence.

Report of Operations of the 30th Division against the Hindenburg line, Sept. 27-30, 1918. H. B., 182-253. (104)

In the attack of September 29, 1918, on the Hindenburg line, the 30th Division had the 60th Brigade in line with the 120th Infantry on the right and the 119th on the left. Both regiments had two battalions in the front line and one in support. The 117th Infantry of the 59th Brigade had the special mission of following the 120th Infantry and facing and acting south to protect the right flank. The regimental machine-gun companies acted with the Infantry front-line battalions. It is noted that they had difficulty in keeping up with the battalions, but were useful against enemy machine guns. The division machine-gun battalion was assigned to the 117th Infantry for use in its mission of protecting the flank. (104)

One company of this battalion, which was assigned to the support of a cleaning-up company of the 117th Infantry, did good work. Both brigade machine-gun battalions were on barrage work. They were grouped under corps orders to deliver overhead covering fire and later were assembled to move on orders from division headquarters. The divisions of the 2d Corps were supported by Australian Artillery, as their own artillery

did not serve with them. The mission of the supporting Artillery was barrage. Following the advance, supporting batteries were moved forward with daring and skill, while close liaison between Infantry and Artillery was maintained at all times. Tanks were assigned to the support of the three Infantry regiments actively engaged. Those assigned to the 117th and 120th Infantry were up in time to accompany the Infantry. Those assigned to the 119th Infantry were not. All tanks were troubled by the fog, but were effective in destroying many machine-gun nests.(104)

In a later attack, October 9, 1918, the 30th Division had the 59th Brigade in the front line with one battalion from the 60th Brigade as brigade reserve of the 59th Brigade. The Infantry regiments in the first-line brigade were abreast. The 117th Infantry had its battalions in depth and the 118th had two battalions in the front line. There was the customary use of tanks, one battalion of heavy tanks being assigned for action with the front-line Infantry, and two companies of whippets to assist in the exploitation. No use was made of accompanying Artillery.(105)

For the attack of October 17 the 2d Corps had both the 27th and 30th Divisions in line. The 27th Division had brigades abreast, regiments in depth, each regiment with battalions in depth. The regimental machine-gun companies were at the disposition of the regimental commander. The brigade machine-gun battalions were used for barrage work, and the division battalion was in reserve. There was the customary use of tanks—ten heavy tanks from the 301st Tank Battalion assisting the advance Infantry, and so far filling the rôle of accompanying guns, of which no mention was made.(106)

The 30th Division had its Infantry brigades in depth, regiments abreast, each regiment with its battalions in depth. The third-line battalions were available as brigade reserves. The regimental machine-gun companies were at the disposition of the regimental commanders for use with the advance Infantry. The 114th Machine-Gun Battalion was required to provide one company to follow the advance battalion of each Infantry regiment at not more than 1,200 yards, with the various missions of protecting the flank, delivering fire from commanding positions, reducing machine gun nests, and replacing the forward machine guns. The other companies

Battle Instructions No. 1, series B, 30th Division, Oct. 6, 1918. H. B., 182-7.(105)

F. O. 63, 27th Division, Oct. 15, 1918. H. B., 182-8.(106)

Battle Instructions No. 1, and 4, series D, 30th Division, Oct. 15, 1918. H. B., 182-8.(107)

were to move forward in support. The 113th and 115th Machine Gun Battalions were assigned to harassing fire. The mission of the Artillery was barrage, with provision for the moving up of the mobile Artillery at the leap frog provided for Infantry brigades. Twelve tanks were assigned to assist the Infantry in the attack.(107)

It should not be considered that the 27th and 30th Divisions as a part of the 2d Corps, serving under British tactical command, were far removed from the influence of the tactics developed in the new American Armies. The relationship between the development of tactics in these isolated divisions and in the divisions serving under purely American command was shown in the publication for the information and guidance of the 30th Division of extracts from a report of a brigade commander in the First American Army.

Memo. of the
30th Division,
Oct. 19. Ex-
tracts from report
of a Brigade Com-
mander, First
Army. H. B.,
182-8.(108)

This report recommended the assignment of battalions, prior to attack, to areas one-half kilometer in depth in order to provide shelter. It recommended the moving up of the second-line battalion just previous to the jump-off in order to get through the barrage quicker, and that the third battalion hold its distance and pick its way between shelled areas in advancing. The Infantry formation recommended within the brigade was that of regiments abreast, each regiment with battalions in depth and one company taken from each third-line battalion to follow the brigade commander at 200 meters as his reserve. The formation recommended for the first-line companies was two platoons in the first wave, and two platoons in support at 100 meters. The use of machine guns was provided for by assigning one company to each battalion as the fifth company of that battalion and prescribing the use of overhead fire when possible.(108)

The Infantry formations used by divisions serving with the British appeared, therefore, to have followed much the same lines as those used by American divisions serving under French tactical command and American divisions serving under purely American command. In the use of machine guns there was evidenced a tendency to use only regimental machine guns in intimate connection with the advancing Infantry and to use the machine-gun battalions rather more as units for barrage work. This use followed closely that which must have

Report of the C.
in C., A. E. F.,
cabled Nov. 20,
1918, p. 3.(109)

been visualized for the machine gun when the tables of organization which governed American divisions in France were drawn up.(109) A report of a board of machine-gun officers from the 27th Division, concurred in by the division commander, recommended the use of machine guns as a fourth arm.(110)

Letter from the
Commanding
General, 27th Di-
vision, Jan. 12,
1920. H. B., 227.
(110)

9. Formations in Other Divisions.

Formations in other divisions, as evidenced by division orders, conformed essentially to the formations found in the six divisions already instanced. They naturally varied somewhat according to conditions.

In the St. Mihiel operation the 90th Division held quite a wide front and attacked initially only on a part of the front. The formation adopted was brigades abreast, regiments abreast. One machine-gun company was attached to each assault battalion. The Artillery was charged with barrage.(111)

F. O. 3, 90th Di-
vision, Sept. 9,
1918. H. B., 290-
5.(111)

In participation in this operation this division found that the most successful formation for an Infantry battalion on a front of five to six hundred meters was a square formation, with two companies in assault and two in support. More companies in assault on a wider front resulted in loss of control and driving power. The formation adopted in one of its Infantry regiments was as above, with two platoons in each company in the assault and two in support, with 150 meters between the assault and support companies and with each support company formed in one-half platoon columns. In this regiment a machine-gun company was attached to each Infantry battalion, with one platoon of the machine-gun company on each flank and to the rear and with the third platoon 50 meters to the rear. A question was raised as to the value of machine-gun companies with the assault battalions when Infantry is following the barrage.(112)

Notes on Re-
cent Operations
No. 1, 90th Di-
vision Oct. 5, 1918.
H. B. 290-14.(112)

Toward the end of the Meuse-Argonne operation, which had developed in a manner into a battle of attrition,(113) this division employed its brigades one behind the other. The attacking brigade had its regiments in depth. The reserve brigade had its regiments abreast with battalions in depth. A machine-gun company was attached to each assault battalion. One Artillery battery was designated as an accompanying battery for the leading battalion of the 360th Infantry.(114)

Final report of
C. in C., A. E. F.,
p. 49.(113)
F. O. 13, 90th
Division, Oct. 29,
1918. H. B.
290-11.(114)

Weekly report,
French Military
Mission to 90th
Division, July 30,
1918. H. B.
290-27.(115)

A report of the French Military Mission with this division throws an interesting sidelight on the use of machine guns with Infantry in attack maneuvers before entering the line. The report criticized the use of machine-gun battalions in large batteries, out of liaison with the Infantry, and insisted that the employment of machine-gun units with Infantry battalions is essential. This is, of course, an established French doctrine supported by their organization of the Infantry battalion to include a machine-gun company.(115)

Special report,
80th Division,
Sept. 9-Nov. 11,
1918. H. B. files,
280-10.(116)
F. O. 16, 80th
Division, Oct. 22,
1918. H. B. files,
280-17.(117)

The Meuse-Argonne operation was the only major offensive in which the 80th Division participated as a unit. The normal Infantry formation used by this division throughout the Meuse-Argonne operation was column of brigades. On September 26, 1918, the division attacked in its normal formation with the 160th Infantry Brigade in front. This brigade had its regiments abreast, each regiment with battalions in depth.

The machine-gun battalion of the assaulting brigade was at the disposition of the brigade, with machine-gun companies attached to each front line Infantry battalion. The other two battalions were used to deliver overhead covering fire, which prisoners reported very effective. One battalion of 75's was assigned to the direct support of the 160th Infantry Brigade; one battery from this battalion was assigned to each front-line Infantry battalion, the third battery was placed under the direct orders of the Infantry brigade commander and was to be moved up with the supporting Infantry. The use planned for this Artillery was fire in support of the Infantry at from 300 to 1,500 meters.(116-117)

In the attack of October 4 the 80th Division employed the same Infantry formation. Front-line battalions used two companies in the front line and two in support. One battalion of 75's was assigned to the attacking Infantry brigade as accompanying Artillery. This battalion, however, was actually incorporated in the barrage and did not move forward on the first day. In the attack of November 1 the 80th Division was supported by the 157th Field Artillery Brigade of the 82d Division. In this attack one regiment of 75's was utilized only 600 yards from the front line.(116)

A note published by this division during the latter part of the Meuse-Argonne operation prescribed the use of accompanying guns in accordance with instructions from higher authority. (118)

The first experience of the 91st Division was in the Meuse-Argonne offensive on September 26. This division attacked with its Infantry brigades abreast. The 181st Brigade on the right had its regiments abreast each with one battalion in line and one in support. The 182d Brigade had its regiments in column each with one battalion in the front line and one in support. On September 27 the 182d Brigade changed its formation to place its Infantry regiments abreast. On September 28 both brigades had their regiments in depth. The third-line Infantry battalions were held in reserve, one battalion in each brigade was the brigade reserve, the other third-line battalion forming part of the division reserve. There was a characteristic attachment of machine-gun companies to Infantry battalions. One regiment of 75's was assigned to the support of each Infantry brigade. Accompanying guns taken from the supporting Artillery were reported to have been used successfully with assault battalions, as were the Infantry 37's. (119)

Following its participation in the Meuse-Argonne offensive, in the middle of October, the 91st, together with the 37th Division, was attached to the French 6th Army in Belgium. The 91st Division was accompanied by the Field Artillery brigade of the 28th Division. On October 31 this division attacked with its Infantry brigades abreast. The 181st Brigade on the right had its regiments in depth and the first-line regiment had two battalions in the front line; the 182d Brigade on the left had but one regiment in line. This regiment had its battalions in depth. A minimum depth of 300 meters was prescribed for each battalion and the minimum distance of 500 meters between battalions. In each assault battalion two companies were in the front line, the other two companies in support at 300 meters distance. The characteristic attachment of subordinate machine-gun units to subordinate Infantry units appeared in the formation of a cleaning-up battalion. After the first objective had been taken by the Infantry one regiment of 75's passed to the command of each Infantry brigade. One platoon of 75's was assigned for use as accompanying guns to each front-line Infantry battalion. (120)

Operation memo. 22, 80th Division, Oct. 25, 1918. G-3 files, A. E. F. (118)

Special report of operations of the 91st Division, Sept. 26-Oct. 4, 1918. G-3 files, A. E. F. (119)

F. O. 21, 91st Division, Oct. 30, 1918. G-3 files, A. E. F. (120)

Operations report, 35th Division, Sept. 26-30 incl. G-3 files, A. E. F. (121)

On September 26, 1918, at the beginning of the Meuse-Argonne offensive the Infantry formation of the 35th Division was brigades in depth, with the 69th Brigade in the front line. This brigade had its regiments abreast, with the 138th Infantry on the right, the 137th Infantry on the left. Both regiments had their battalions in depth. One battalion was detached from the 70th Brigade, as the 69th Brigade's reserve. Each assault and support battalion had a machine-gun company attached. Combat liaison groups each of one company and a machine-gun platoon were sent out by the 69th Brigade to flanking divisions. (121) The remainder of the machine guns were designated to fire barrage. One platoon of Light Artillery was designated to support tanks against antitank guns, and one battery used as forward guns with advance Infantry. The Artillery fired barrage and moved forward by echelon. The 344th Tank Battalion less one company assisted the advance of the Infantry. (122) September 27 the 70th Brigade passed through to attack with regiments abreast, each regiment with two battalions in the front line and one in support. The 69th Brigade was in support, with regiments abreast and battalions in depth. (121)

F. O. 48, 35th Division, Sept. 28, 1918. G-3 files. A. E. F. (123)

On September 28 on the assumption that the main body of the enemy had retreated, and that the advance would be opposed principally by Artillery and machine-gun fire, a two-column formation was ordered for September 29. (123) Both Infantry brigades were split in this new formation. These columns were essentially provisional brigades abreast, the right column consisting of the 138th and the 140th Infantry and the 129th Machine Gun Battalion, the left column of the 137th and the 139th Infantry and the 130th Machine Gun Battalion. Of the leading regiments, the 138th Infantry had its battalions in depth. The 137th had two assaulting battalions, one in support. A machine-gun company was attached to each assault and support battalion. (121)

Special report, Operations of the 79th Division, Sept. 26-Oct. 1, 1918. G-3 files, A. E. F. (124)

As in the case of the 35th Division, the first participation of the 79th Division in a major offensive was between the Meuse and the Argonne on September 26. The initial Infantry formation was elaborate. Brigades were in depth with the 157th Brigade in the front line. This brigade had its regiments abreast, the 314th Infantry on the right, the 313th on the left. Each regiment had two battalions in the front line and one in brigade

reserve. The front-line battalions were echeloned in depth by companies, with one company in the front line, one in support, one in battalion reserve, and one in regimental reserve. One company from each battalion in brigade reserve was returned to be distributed throughout the regiment for cleaning up. Subordinate machine-gun units were attached to subordinate Infantry units. The 147th Field Artillery was designated as accompanying Artillery for both front-line regiments and ordered to proceed forward to report to them on conclusion of its barrage mission. (124)

On September 27, however, both brigades of this division were split and two provisional brigades abreast with regiments in depth were created as in the case of the 35th Division. To push the advance the commanding general of the 158th Brigade was placed in command of the Provisional 158th Brigade consisting of the 315th Infantry, and the 314th Infantry from the 157th Brigade. The commanding general of the 157th Brigade was placed in command of a provisional brigade consisting of the 313th Infantry, in the front line, and the 316th Infantry, from the 158th Brigade, in support. (124)

The 90th Division has been seen to have changed from a prior formation of brigades abreast to one of brigades in depth in its participation in the Meuse-Argonne offensive. The 80th Division has been seen to have used the latter throughout this battle of attrition. It is self-evidently useful as prolonging the period of battle availability of a division by making possible entire internal Infantry relief. But the parallel instances of the 35th and 79th Divisions, changing from an established formation of brigades in depth to an improvised one of provisional brigades abreast, even in the midst of battle, would seem to indicate the value in times of stress of the simpler formation of brigades abreast.

10. General Discussion.

The instances quoted show the formations adopted by various divisions under various circumstances in an endeavor to utilize to the fullest the power of the various arms. This was naturally also the preoccupation of General Headquarters, A. E. F., which published from time to time, during the participation of American forces in the war with Germany, "Notes on Recent Operations," in order to disseminate among the command knowledge

Report of Superior Board on organization and tactics, Apr. 19, 1919. G-3 files, A. E. F. (125)

gained from experience. Following the armistice various boards were convened by General Headquarters, A. E. F., to study and make available for future utilization late experiences. Finally a superior board was appointed to study the same questions in a more general manner, to pass on the reports of the boards on the various arms, and to render a final report on organization and tactics. (125) From a study of the documents just mentioned, and especially from a study of the report of the Superior Board, general conclusions as to what formations gave the best results may be drawn.

Report of Commanding General, 1st Army, p. 129. G-3 files, A. E. F. (126)

The organization of the Infantry division was sound and appropriate to the requirements of modern battle tactics. A three-unit system in divisional organization might have been more appropriate for envelopment, but the two-unit system was better for penetration. (125) No necessity existed for a three-unit system in divisions in the experience of the A. E. F. as the division was always a part of an army. The existing two-unit system was better for relief, liaison, etc. (126)

Report of Superior Board, etc., pp. 18-20. (127)
Report of Superior Board, etc., pp. 21-27. (128)

The Infantry continued to be the basic arm. Infantry attacks alone were found to be decisive. (127) In order to defeat the enemy the Infantry must be prepared to close with him. The unit which must be charged with this duty, the combat unit, was found to be the Infantry battalion. (128)

Notes on Recent Operations No. 3. No. 1376. G-5 H. B. files. (129)

The essential in all Infantry formation within the division was found to lie in a disposition in depth, to combine facility of command with avoidance of losses. This dictated attacks in thin waves supported by small columns. (129)

Notes on Recent Operations No. 1. No. 1322. G-5, and Notes on Recent Operations No. 4. No. 1417. G-5. H. B. files. (130)

The proper formation to secure the most effective use of machine guns was constantly in question. The necessity for the physical advance of the machine guns with the Infantry and the necessity for utilizing machine gun fire effect to assist the advance of the Infantry were constantly in conflict. (130) Even after the armistice difference of opinion existed as to the proper formation to be adopted by machine-gun units. The Superior Board, however, found that as the Infantry battalion was the essential combat unit and as a machine-gun organization must be an essential part of that unit, a machine-gun company should form a part of each Infantry battalion. The board also found that the number of machine-gun companies in the division, fourteen, was correct, as giv-

Report of Superior Board, etc., pp. 127-128. (131)

ing one company for each Infantry battalion and the division machine-gun battalion as a reserve.(131)

The use of Infantry auxiliary arms was constantly made the subject of comment in notes on operations or combat instructions. The agreement was general that the 37 millimeter, 1-pounder gun should be used by the front-line Infantry battalions and that the Infantry trench mortars should be used so far as the difficulties of ammunition supply permitted.(132)

Combat Instructions No. 1348, G-5. H. B. files.(132)

The mission of tanks was found to be the destruction of strong points which impeded Infantry advance and the employment of tanks distinctly advantageous to morale. It was found that tank units should be organized in association with and fight as a part of Infantry commands. It was believed that all tanks should be armed with 75-millimeter guns.(133)

Report of Superior Board, etc., P. 29.(133)

The principle of unity of direction of Artillery fire as laid down in Field Artillery Drill and Service Regulations was found to be sound, and it was found that command of Artillery units should normally remain in the hands of Artillery officers. It appeared essential, however, that there should be the closest possible contact between Infantry and the supporting Artillery and that consequently within the division the subordinate Artillery units should be regularly assigned to work with subordinate Infantry units, one 75-millimeter regiment to each Infantry brigade.(134)

Report of Superior Board, etc., pp. 36-37.(134)

Some inefficiency was found as a result of the employment in support of divisional Infantry of French Artillery or of American Artillery not belonging to the division, with a consequent loss of intimate association and teamwork.(135)

Report of the Commanding General, 1st Army, p. 11, G-3 files, A. E. F.(135)

This lack of teamwork between Infantry and Artillery may have prompted the use of accompanying guns, which has been seen to have been consistently adhered to in operations under American command and which was directly ordered by such superior units as an army.(136) The use of the accompanying gun conformed to German tactics in the German offensives of 1918. It may be noted that the Germans notoriously lacked tanks, of which no use was made in these offensives.(137)

F. O. 88, 1st Army, Oct. 27, 1918. G-3 files, A. E. F.(136)

A Survey of German Tactics, 1918. Monograph No. 1. H. B., 1918.(137)

It has been seen that this device was not used by American divisions under French or British command except in the case of a division serving under French control in the last days of the war after its habits had been

Report of Hero
Board (Artillery
Board), Dec. 9,
1918. G-3 files,
A. E. F. (138)

formed under American command. The Field Artillery Board found that the previous use of accompanying guns had been a failure and recommended the use of tank mounts for accompanying Artillery. (138) The Superior Board found physical difficulties in getting up the accompanying gun. (139) This recalls Gen. Chaffee's statement: "Nothing whatever should be included in the Infantry that can not be moved by hand over any kind of ground, in any kind of weather, and at any hour of the day or night." (140) The Superior Board consequently considered the use of a tank mount for the accompanying gun. This board, however, insisted on the value of the psychological effect of intimate association between the Infantry and Artillery as exemplified in the support of subordinate Infantry commands by subordinate Artillery commands. (139)

Report of Superior Board, etc., pp. 36 and 46. (139)

Simplifying the Organization and Tactics of Infantry. Parker, Infantry Journal, Jan., 1920. (140)

11. Conclusions.

It is evident that formations must vary according to conditions. Two distinct formations for an Infantry division have been seen; they are that of Infantry brigades abreast and that of Infantry brigades in depth.

It may be said that the formation with brigades abreast has the virtue of simplifying the problems of command and communication, always so difficult in battle, and that it possesses greater power for an initial blow than does the other formation.

It may be said that the formation with brigades in depth lends itself better to a continuing battle by making possible, within a division, complete Infantry relief, and that it presents greater opportunity for maneuver.

BIBLIOGRAPHY.

(In order of citation.)

- Funk & Wagnall's Standard Dictionary.
 The Principles of War, Foch.
 The Conduct of War, Von der Goltz.
 Features of the War, Haig.
 Report of Chief of Staff, U. S. Army, 1919.
 Report of Commander in Chief, A. E. F.,
 cabled November 20, 1918.
 Report of Commanding General, 1st
 Army, A. E. F.
 Etudes sur le Combat, du Picq.
 Annual Report of the Secretary of War,
 1919.
 Report on the Organization of the Land
 Forces of the United States, 1912.
 National Defense Act, Approved June 3,
 1916.
 Tables of Organization, U. S. Army, 1917.
 Tables of Organization for Expeditionary
 Divisions, Provisional. H. B. files.
 Tables of Organization, Series A, 1918.
 Priority Schedule, A. E. F.
 Final Report of Commander in Chief,
 A. E. F., 1919.
 Report of Superior Board, A. E. F.
 Infantry Drill Regulations, 1911.
 Combined Infantry and Cavalry Drill
 Regulations for Automatic Machine
 Rifle, 1915.
 Provisional Drill and Service Regulations
 for Field Artillery, 1916.
 Field Service Regulations, 1914.
 Field Orders and Memos, 90th Division.
 Journal of Operations, G-3, A. E. F.
 Instructions on the Defensive Action of
 Large Units in Battle. W. D. D. 794,
 1918.
 Field Orders and Memos, 1st Division.
 Tableaux d'Effectifs, G. S. College Li-
 brary.
 Combat Instructions No. 1348, G-5,
 A. E. F.
 1st Division Maps, G-3, A. E. F.
 Reports and Field Orders, 2d Division
 and subordinate organizations.
 Note on use of Tanks, French 10th Army,
 July 15, 1918. H. B. files.
 Field Orders and Reports, 26th Division
 and subordinate organizations, G-3,
 A. E. F.
 Field Orders and Reports, 42d Division.
 G-3, A. E. F.
 Field Orders and Reports, 30th Division.
 Field Orders and Reports, 27th Division.
 Letter from Commanding General, 27th
 Division, January 12, 1920. H. B. files.
 Report of French Military Mission to 90th
 Division, July 30, 1918. H. B. files.
 Report and Memos, 80th Division, G-3,
 A. E. F.
 Reports and Field Orders, 91st Division,
 G-3, A. E. F.
 Reports and Field Orders, 35th Division,
 G-3, A. E. F.
 Reports and Field Orders, 79th Division,
 G-3, A. E. F.
 Notes on Recent Operations, G-5, A. E. F.
 Field Orders, 1st Army.
 A Survey of German Tactics, Monograph
 No. 1. Historical Branch, 1918.
 Report of Hero Board, December 9, 1918,
 A. E. F.
 Infantry Journal, January, 1920.



UNIVERSITY OF CALIFORNIA LIBRARY,
BERKELEY

THIS BOOK IS DUE ON THE LAST DATE
STAMPED BELOW

Books not returned on time are subject to a fine of
50c per volume after the third day overdue, increasing
to \$1.00 per volume after the sixth day. Books not in
demand may be renewed if application is made before
expiration of loan period.

APR 2 1924

NOV 1 1928

20 Mar '62 S R
RECD LD

MAR 6 1962

10m-12,'23

Gaylord Bros.
Makers
Syracuse, N. Y.
PAT. JAN. 21, 1908

YC 64445

U 34- 451438

167

UNIVERSITY OF CALIFORNIA LIBRARY

